



Stoel Rives LLP

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Title: ADENO-ASSOCIATED VECTOR COMPOSITIONS FOR EXPRESSION OF FACTOR VIII

Replacement Sheet

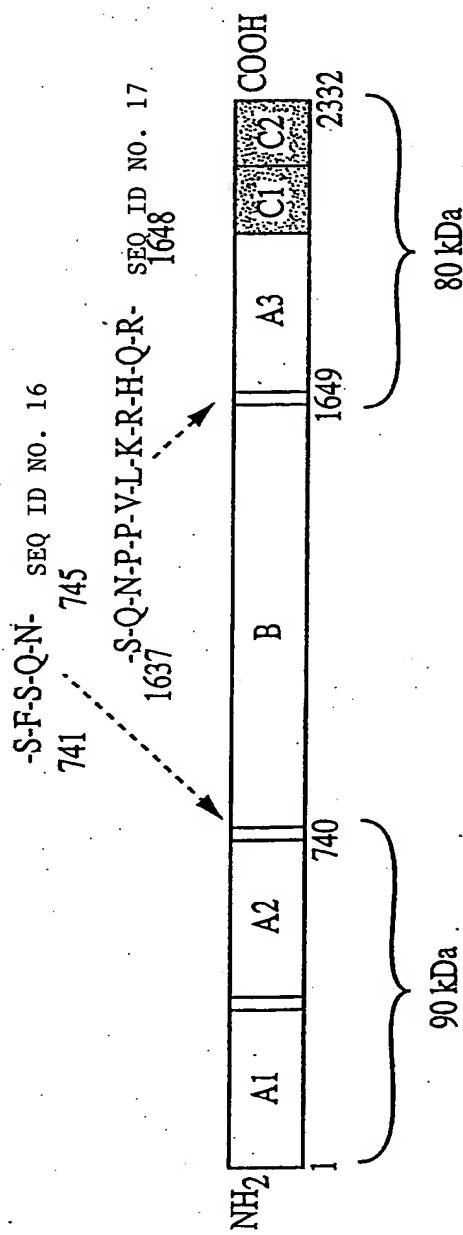


FIG. 1

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Replacement Sheet

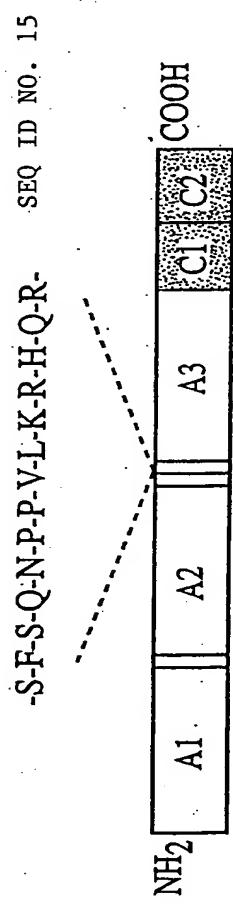


FIG. 2

Replacement Sheet

-S-F-S-Q-N-P-P-V-L-K-R-H-Q-R-

SEQ ID NO. 15

	EFF	PROMOTER	A1	A2	A3	C1	C2	POLY A	ITR
16	145 159	287 413				4786	4793	4840	4849 4978

FIG. 4

Replacement Sheet

- FIG. 5A**
- FIG. 5B**
- FIG. 5C**
- FIG. 5D**

FIG. 5

SEQ ID NO. 13

CAGCTGCGCGCTCGCTCGCTACTGAGGCCGCCGGCAAAGCCCGGGCGTCGGGCCACCTTGGTCGCCGCCCTCAGT
 GAGCGAGCGAGCGCGCAGAGAGGGAGTGGCAACTCCATCACTAGGGTTCCCTCGGCCGCCAGGAATGTTGTTCTT
 AAATACCATCCAGGAATGTTGTTCTAAATACCATCCAGGAATGTTGTTCTAAATACCATCTACAGTTATTGTT
 AAAGAAGTATATTAGAGCGAGTCTTCTGCACACAGATCACCTTCCGGTGCCGCCCTAGGCAGGTAAGTGCGTGTG
 TGGTTCCCGGGCCTGGCTCTTACGGTTATGCCCTGCGCTTGAATTACTGACACTGACATCCACTTTCT
 TTTCTCACAGGTATCGATTCCACCATGCAAATAGAGCTCTCACCTGCTTCTTCTGTGCCCTTTCGCGATTCTGCTT
 AGTGCCACCAGAAGATACTACCTGGGTGCACTGTCATGGACTATATGCAAAGTGTACTCGGTGAGCTGCCGT
 GGACGCAAGATTCCCTAGAGTGCAAATCTTCAACACCTCAGTCGTGTACAAAAGACTCTGTTGAG
 AATTACCGATCACCTTCAACATCGCTAACGCCAAGGCCACCCCTGGATGGGTCTGCTAGGTCTTACCATCCAGGCTGAG
 GTTTATGATACAGTGGTCATTACACTTAAGAACATGGCTCCATCTGTCACTGCTTGTGTTGGGTATCCTACTG
 GAAAGCTCTGAGGGAGCTGAATATGATGATCAGACCAGTCAAAGGGAGAAAGAACATGATAAAGTCTTCCCTGGTGAA
 GCCATACATATGTCTGGCAGGTCTGAAAGAGAACATGGTCAAATGGCTCTGACCCACTGTGCCCTACCTACTCATATCT
 TCTCATGTGGACCTGGTAAAGACTTGAATTCAAGGCTCATTGGAGCCCTACTAGTATGTAGAGAACGGAGTCTGCCAA
 GGAAAAGACACAGACCTTGCACAAATTACTACTTTGCTGTATTGATGAAGGGAAAAGTTGGCACTCAGAAACAA
 AGAACCTTGATGCAAGGATAGGGATGCTGCATCTGCTCGGCCCTGGCTAAACATGACACAGTCAATGGTTATGAAAC
 AGGTCTTGCCAGGTCTGATTGGATGCCACAGGAATCAGTCTATTGGCATGTGATTGGAAATGGCACCACTCTGAAGT
 GCACTCAATATTCTCGAAGTCACACATTCTGTGAGGAACCATGCCAGGCGTCTTGGAAATCTGCCAATAACTT
 TCCTTACTGCTCAAACACTCTGATGGACCTTGGACAGTTCTACTGTTGTATATCTCTTCCACCAACATGATGGC
 ATGGAAGCTTATGTCAAAGTAGACAGCAGTGTCCAGAGGAACCCAACTACGAATGAAAATAATGAAGAACGGAAAGACTA
 TGATGATGATCTTACTGATTGAAATGGATGTGGTCAGGTTGATGATGACAACACTCTCCTTCTTATCCAAATTGCT
 CAGTTGCCAAGAACATCTAAACTTGGGTACATTACATTGCTGCTGAAGAGGGAGCTGGACTATGCTCCCTTAGTC
 CTCGCCCTGGATGACAGAAGTTATAAAAGTCATATTGAAACATGGCCCTCAGGGATTGGTAGGAAGTACAAAAGT
 CCGATTTATGGCATACACAGATGAAACCTTAAGACTCGTGAAGCTATTCAAGCATGAATCAGGAATCTGGACCTTAC
 TTTATGGGAAGTTGGAGACACACTGTTGATTATTTAAGAATCAAGCAAGCAGACCATATAACATCTACCCCTCACCGA
 ATCACTGATGTCGCTCTTGTATTCAAGGAGATTACAAAAGGTGAAAACATTGAAGGATTGGCAATTCTGCCAGG
 AGAAAATATTCAAATATAATGGACAGTGAAGTGTAGAACATGGCCAACTAAACATGACATCTCGGTGCGTACCCGCTATT
 ACTCTAGTTGTTAATATGGAGAGAGACTAGCTCAGGACTCATGGCCCTCTCTCATCTGCTACAAAGAACATGTA
 GATCAAAGAGGAACCAAGATAATGTCAAGAACAGGAATGTCACTCTGTTCTGTATTGATGAGAACCGAACGCTGGTA
 CCTCACAGAGAATATACAACGCTTCTCCCAATCCAGCTGGAGTGCAGCTTGCAGGATCCAGAGTTCCAAGCCTCCAACA
 TCATGCACAGCATCAATGGCTATGTTTGATAGTTGCAGTTGTCAGTTGTTGCATGAGGTGGCATACTGGTACATT
 CTAAGCATTGGAGCACAGACTGACTTCCTTCTGTCTTCTGGATATACCTCAAACACAAAATGGTCTATGAAAGA

FIG. 5A

CACACTCACCTATTCCCATTCTCAGGAGAAACTGTCTCATGTCGATGGAAAACCCAGGTCTATGGATTCTGGGTGCC
 ACAACTCAGACTTCGGAACAGAGGCATGACCGCCTACTGAAGGTTCTAGTTGTGACAAGAACACTGGTATTATTAC
 GAGGACAGTTATGAAGATATTCAGCATACTGCTGAGTAAAACAATGCCATTGAACCAAGAAGCTTCGAAATAACTCG
 TACTACTCTTCAGTCAGATCAAGAGGAAATTGACTATGATGATACCATATCAGTTGAATGAAGAAGGAAGATTTGACA
 TTTATGATGAGGATGAAATCAGAGCCCCCGCAGCTTCAAAAGAAAACACGACACTATTTATTGCTGCAGTGGAGAGG
 CTCTGGGATTATGGGATGAGTAGCTCCCCACATGTTCTAAGAAACAGGGCTCAGAGTGGCAGTGTCCCTCAGTTCAAGAA
 AGTTGTTTCCAGGAATTACTGATGGCTCCTTACTCAGCCCTATACCGTGGAGAACTAAATGAACATTGGACTCC
 TGGGCCATATATAAGAGCAGAAGTGAAGATAATATCATGGTAACCTTCAAGAAATCAGGCCTCTCGTCCCTATTCTTC
 TATTCTAGCCTTATTCTTATGAGGAAGATCAGAGGCAAGGAGCAGAACCTAGAAAAAAACTTGTCAAGCCTAATGAAAC
 CAAAACTTACTTTGAAAGATGCAACATCATATGGCACCCACTAAAGATGAGTTGACTGCAAAGCCTGGCTTATTCT
 CTGATGTTGACCTGGAAAAAGATGTGCACTCAGGCCCTGATTGGACCCCTCTGGTCTGCCACACTAACACACTGAACCC
 GCTCATGGGAGACAAGTGCACAGTACAGGAATTGCTCTGTTTCAACCATTGATGAGACCAAAAGCTGGTACTTCAC
 TGAAAATATGAAAGAAACTGCAGGGCTCCCTGCAATATCCAGATGGAAGATCCCACCTTAAAGAGAAATTATCGCTTCC
 ATGCAATCAATGGCTACATAATGGATACACTACCTGGCTTAGTAATGGCTCAGGATCAAAGGATTCGATGGTATCTGCTC
 AGCATGGGAGCAATGAAAACATCCATTCTATTCACTTCAGTGGACATGTTCACTGTACGAAAAAAAGAGGAGTATAA
 AATGGCACTGTACAATCTCATCCAGGTGTTTGGAGACAGTGGAAATGTTACCATCAAAGCTGGAATTGGCGGGTGG
 AATGCCATTGGCGAGCATCTACATGCTGGATGAGCACACTTTCTGGTGTACAGCAATAAGTGTCAAGCTCCCTG
 GGAATGGCTTCTGGACACATTAGAGATTCAGATTACAGCTTCAGGACAATATGGACAGTGGGCCAAAGCTGGCAG
 ACTTCATTATTCCGGATCAATGCCTGGAGCACCAAGGAGCCCTTCTGGATCAAGGTGGATCTGGCACCAA
 TGATTATTACGGCATCAAGACCCAGGGTCCCCGTCAGAAGTCTCCAGCCTACATCTCATGTTATCATCATGTAT
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 GCAGCACTTCGCATGGAGTTGATGGCTGTGATTAAATAGTGCAGCATGCCATTGGGAATGGAGAGTAAAGCAATA
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 CCAAGGGAGGAGTAATGCCCTGGAGACCTCAGGTGAATAATCCAAAAGAGTGGCTGCAAGTGGACTTCCAGAAGACAATGA
 AAGTCACAGGAGTAACTACTCAGGGAGTAAAATCTCTGCTTACAGCATGATGTGAAGGAGTCCCTCATCTCCAGCAGT
 CAAGATGCCATCAGTGGACTCTTTTCAGAATGGCAAAGTAAAGGTTTCAGGAAATCAAGACTCCTTCACACC
 TGTGGTGAACTCTAGACCCACCGTTACTGACTCGTACCTTCGAATTCCCCCAGAGTTGGGTGCACCAAGATTGCC
 TGAGGATGGAGGTTCTGGCTGCGAGGCACAGGACCTACTGACTCGAGAATAAAAGATCAGAGCTTAGAGATCTGTG
 TGTTGGTTTTGTGCGGGCCGAGGAACCCCTAGTGATGGAGTTGCCACTCCCTCTGCGCGCTCGCTCCTCA
 GAGGCCGGCGACCAAAGGTGCCCGACGCCGGCTTGCCTGGGGCGCTCAGTGGAGCGAGCGGCCAGCTGCC
 GCAGGACATGTGAGCAAAGGCCAGCAAAGGCCAGGAACCGTAAAAGGCCGTTGCTGGCTTTCCATAGGCTCC
 GCCCCCTGACGAGGATCACAAAATCGACGCTCAAGTCAGAGGTGGCAGAACCGACAGGACTATAAGATACCGAGC
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 GGGAGCGTGGCGCTTCTCATAGCTCACGCTGTAGGTATCTCAGTTGGTGTAGGCTCGCTCCAAGCTGGCTGTG
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 GTGGCCTAACTACGGCTACACTAGAAGGACAGTATTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGAAAAGAG
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 AAAAGGATCTCAAGAAGATCTTGTACCTTGTACGGGTCTGACGCTCAGTGGAAACGAAAACTCACGTTAAGGGAT

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 TCCATAGTTGCCTGACTCCCCGTCGTAGATAACTACGATAACGGGAGGGCTTACCATCTGGCCCCAGTGCTGCAATGAT
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 CTGCAACTTATCCGCCTCCATCCAGTCTATTAAATTGTTGCCGGAGCTAGAGTAAGTAGTTGCCAGTTAATAGTTG
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 ACGATCAAGGCAGTTACATGATCCCCATGTTGCAAAAAGCGGTTAGCTCCTCGGTCTCCGATCGTTGTCAGAA
 GTAAGTTGCCGCAGTGTATCACTCATGGTTATGGCAGCACTGCATAATTCTTACTGTCACTGCCATCCGTAAGATGC
 TTTCTGTGACTGGTGAGTACTCAACCAAGTCATTGAGAATAGTGTATGCCGACCGAGTTGCTCTGCCCGCGTC
 AATACGGATAATACCGGCCACATAGCAGAACTTAAAAGTGTCACTATTGAAAACGTTCTCGGGCGAAAACCTCT
 CAAGGATCTTACCGCTGTTGAGATCCAGTTGATGTAACCCACTCGTCACCCAACTGATCTCAGCATTTTACTTTC
 ACCAGCGTTCTGGGTGAGCAAAAACAGGAAGGCAAAATGCCCAAAAAGGGAATAAGGGCAGACCGAAATGTTGAAT
 ACTCATACTCTCCTTTCAATATTATTGAAAGCATTATCAGGGTTATTGTCATGAGCGGATACATATTGAATGTA
 TTTAGAAAATAACAAATAGGGTTCCGCGCACATTCCCGAAAAGTGCACCTGACGTCTAAGAAACATTATTATC
 ATGACATTAACCTATAAAAATAGGCGTATCACGAGGCCCTTCGTCAGCTGTAAGCGGATGCCGAGCAGACAAGCCGTCAGGGCGCTG
 ACACATGCAGCTCCCGAGACGGTCACAGCTTGTCTGTAAGCGGATGCCGAGCAGACAAGCCGTCAGGGCGCTG
 CGGGTGTGGCGGGTGTGGCTTAACTATGCGGATCAGAGCAGATTGACTGAGAGTGCACCATAAAATTGTA
 AACGTTAATATTGTTAAAATTGCGTTAAATTGTTAAATCAGCTCATTAAACCAATAGGCCAAATCGGAA
 AATCCCTATAAAATCAAAAGAATAGCCGAGATAGGGTTGAGTGTGTTCCAGTTGGAACAAGAGTCCACTATTAAAGA
 ACGTGGACTCCAACGTCAAAGGGCAAAAACCGTCTATCAGGGCAGGCCACTACGTGAACCATCACCCAAATCAAGT
 TTTTGGGTGAGGTGCCGTTAAGCACTAAATCGGAACCCCTAAAGGGAGCCCCGATTAGACGTTGACGGGAAAGCC
 GCGAACGTGGGAGAAAGGAAGGAAAGCGAAAGGAGCGCTAGGGCGCTGGCAAGTGTAGCGGTACGCTGC
 GCGTAACCACCAACCCGCCGCTTAATGCGCCGCTACAGGGCGTACTATGTTGCTTGAACGTTGACGTATGGGTGTGAAA
 TACCGCACAGATGCGTAAGGAGAAAATACCGCATCAGGCCGTAACCTGTCGGATCACCGGAAAGGACCGTAAAGTGATA
 ATGATTATCATCTACATATCACAACGTGCGTGGAGGCCATCAAACACGTCAAATAATCAATTATGACGCAAGGTATCGTA
 TTAATTGATCTGCATCAACTAACGTTAAAACAACCTCAGACAATAACAAATCAGCAGACTGAATAACGGGCAACCTCAT
 GTCAACGAAGAACAGAACCCGAGAACACAACACCGCAACATCCGCTTCTTAACCAATGATTGAACAAATTACATCG
 CTCTTGAGCAAAAAGGGTCCGGAAATTCTCAGCCTGGTCATTGAAGCCTGCCGCGAGACTAACGTCAGAAAAGAGA
 GCATATACATCAATTAAAGTGTGAAGAATGAACATCCCGCTTCCCTCCGAACAGGACGATATTGAAATTCACT
 TAATTACGAGGGCATTGCGAGTAATTGAGTTGCGAGTTTACCACTTCTGACAGTGCAGACTGCGTGTGGCTCTGTCA
 CAGACTAAATAGTTGAATGATTAGCAGTTATGGTGTACGTCACCAACCCAGGGAAATACTCTCATATTATTATCGTGC
 TTCACCAACGCTGCCCAATTGCTCTGAAATGCTCCAGAGACACCTTATGTTCTATACATGCAATTACAACATCAGGGTA
 ACTCATAGAAATGGTGTATTAAGCATATTTCACGAATCAGATCCACGGAGGGATCATCAGCAGATTGTTCTTAT
 TCATTGTCGCTCCATGCGCTGCTCTTCATCTAGCGTTAAAATATTACTTCAAATCTTCTGTATGAAGATTGAGC
 ACGTTGGCCTTACATACATCTGCGTTGTATTCCCTCCAGAATGCCAGCAGGACCGCAGTTGTTACGCAACCAATAC
 TATTAAGTGAACATTCCTAAATTGACATAAAATCATCAACAAACACAAGGAGGTCAAGACCGAGATTGAAACGATAAA
 AACGATAATGCAAACACGCGCCCTCGTATCACATGGAAGGTTTACCAATGGCTCAGGTTGCCATTAAAGAAATAT
 TCGATCAAGTGCAGAAAGATTAGACTGTGAATTGTTTATTCTGAACTAAACGTCACAACGTCTCACATTATATTAC
 TATCTAGCCACAGATAATATTACATCGTGTAGAAACGATAACACCGTGTAAATTAAAGGACTAAAAGGTTGAAA
 TGTTAAATTCTCAAGAAACACGCATCTTATAGAAACGTCCTATGATAGGTTGAAATCAAGAGAAATCACATTCA
 ACAGGGAAATCTTGTAAAGCAGGAGTTCCGATGGTTACAAATATCCATGAACATAAAAGATAATTACTACCTT

FIG. 5C

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GATAATTCAATTACTATTTACTGAGAGCATTAGAACACTACACAAATCTTCCACGCTAAATCATAACGTCCGGTTCTT
CCGTGTCAGCACGGGGCGTTGGCATAATGCAATACGTGTACCGCTAAACCCCTGTGTGCATCGTTAATTATTCCCG
ACACTCCCGAGAGAAGTCCCCGTCAAGGGCTGTGGACATAGTTAATCCGGAATACAATGACGATTCATCGCACCTGAC
ATACATTAATAAATATTAACAATATGAAATTCAACTCATTGTTAGGGTTGTTAATTTCACACATACGATTCTGC
GAACATTCAAAAAGCATCGGAATAACACCATGAAAAAAATGCTACTCGCTACTGCGCTGGCCCTGCTTATTACAGGATGT
GCTCAACAGACGTTACTGTTCAAACAAACCGGCAGCAGTAGCACCAGGAAACCACATCACCACATTCCTCGTTTC
TGGAATTGGGCAGAAGAAAATGTCGATGCAGCAAATTGTGGCGGCAGAAAATGTTGTTAAAACAGAAACCCAGC
AAACATTGTAAATGGATTGCTCGGTTTATTACTTTAGGCATTACTCCGCTGGAAGCGCGTGTATTGCTCACAA
TAATTGCATGAGTTGCCCATCGCATAATGGCAACTCTATCTGCACTGCTCATTAATATACTCTGGGTTCCCTCAGTT
GTTTTGCATAGTGTACGCCTCTCTGAGGGTGAATAATCCGTTAGCAGCTAACCTCGTGTATTGCTCATCGAGCGCAGCACAT
TTATCCACGCCGAGGCCGGTGGCTCACGCACTGACTGACAGACTGCTTGATGTCAACCGACGACGACCAGCGC
AACATCATCACGAGAGCATCTTCAGCTTAGCAGCTAACCTCGTGTATTGCTCATCGAGCGCAGCACAT
CACGCTGACGCATCTGATGTCAGTAATTGCCGTTGCCAGCTCAGTCTCTGCAATTGGCATTGGCTGGGCTT
TAGGTAATGGCATTACCGTAATGATTAACAGCCATGACAGGAGACGATGATGCAAGATAACCAGAGCGGAGATAAT
CGCGGTACTCTGCTCATACATCAATCTCTGACCGTTCCGCCGCTTGAATTGCAATCAGGCTGTAGCCT
ATGCTGAACTGACCATAACCAGCGCCGGCAGTGAAGCCAGATAATTGCTGCAACGGTCATTGCTGACGGATATCAC
CACGATCAATCATAGTAAAGGCCACGCTCTTAATCTGCTGCAATGCCACAGCGTCTGACTTTGGAGAGAAGTCT
TTCAGGCCAAGCTGCTTGGTAGGCATCCACCAACGGAAAGAAGCTGGTAGCGTCCGGCCTGTTGATTGAGTT
TGGGTTAGCGTACAAGTTGCGAGGGTGTGGAGTAATCAGTAATAGCTCTCCGCTACAATGACGTATAACC
GATTCTGGTTTCTGACGTCCGTTATCAGTCCCTCCGACCACGCCAGCATATCGAGGAACGCCCTACGTTGATTATG
ATTCTACCATCTTCACTCCGCTTTTAGCAGCGAAGCGTTGATAAGCGAACCAATCGAGTCAGTACCGATGTAGC
CGATAAACACGCTCGTTATAAGCGAGATTGCTACTTAGTCCGGCGAAGTCGAGAAGGTACGAATGAACCAGGC
ATGGCGCACATCGTGCCTGATTACTGTTTGTAAACGCACCGCATTATATCTGCCGGAAGGTACGCCATTGCAA
CGCAAGGATTGCCCGATGCCCTGTTCCCTTGCCGAGAATGGCGCCAACAGGTCACTGTTCTGGCATCTCATGT
CTTACCCCCAATAAGGGATTGCTCTATTAAAGGTAATAGCTGATTACTGATAGAACAAATCCAGGCTACTGTGT
TTAGTAATCAGATTGTTGCTGACCGATATGCACGGCAAACGGCAGGAGGTTGTTAGCGCGACCTCTGCCACCCGCT
TTCACGAAGGTATGTTAAAGGCCGAGCGTAACATTACTAATGAATTCAAGGACAGACAGTGGCTACGGCTCAGTT
GGGTTGTGCTGTTGCTGGCGCGATGACGCCGTACGCATTGGTGTGCTGCTCCGGTATTGCTTAATTCA
GCACAAACGGAAAGAGCACTGGCTAACCAAGGCTGCCACTCTCACGATTATCGACTCAATGCTCTACCTGTTGCGAG
ATATAAAAATCCGAAACCGTTATGCAAGGCTCTAACTATTACCTGCGAATCTGCAACTGTTCCGGATTGCATTGGCAGACCTCT
CTGCCTGCGATGGTTGGAGTTCCAGACGATACGTGAAGTGAACCAACTAGGCGGAATCGTAGTAAGCGCCCTCTTT
CATCTCACTACCACAAACGAGCGAATTAAACCCATCGTGAAGTCAAAATTCAATTGCAATAGTCATATCATGC
CGTTAATATGTTGCCATCCGTGGCAATCATGCTGCTAACGTGTGACCGCATTCAAAATGTTGCTGCGATTGACTCT
TTGTGGCATTGCACCAACCGAGCGTCATACAGCGCTTAACAGTGCAGCCAGGTGGGTTGGTAAGGTTGGGATTAG
CATCGTCACAGCGCAGATGCTGCGTTGCTGGCATCTTGAATAGCGACGCCCTTGCATCTCCGACTCTTCTCGA
CAACTCTCCCCACAGCTCTGTTGGCAATATCAACCGCACGCCCTGTACCATGGCAATCTGCACTCTGCCACCCG
GTCGCGGCACTACGGCAATAATCCGCTAACAGCGAATGTTGCGAGCACTTGCAGTACCTTGCCTTAGTATTCTTCAG
CTGCCCTGCGAG

FIG. 5D

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FIG. 6A

FIG. 6B

FIG. 6C

FIG. 6 SEQ ID NO. 14

CGCCCCTGCAGGCAGCTGCGCGCTCGCTCGCTCACTGAGGCCGCCGGCAA
AGCCCAGGGCGTCGGCGACCTTGGTCGCCCGGCCTCAGTGAGCGAGCGAGC
GCGCAGAGAGGGAGTGGCCAACCTCCATCACTAGGGGTCCTGCAGGCCGCACG
CGTGGTGGCGCGGGTAAACTGGGAAAGTGATGCGTGTACTGGCTCCGCCT
TTTCCCAGGGTGGGGAGAACCGTATATAAGTGCAGTAGTCGCCGTGAAC
GTTCTTTCGCAACGGGTTGCCGCCCGCAGGTAAAGTGCCAGGAAAT
GTTGTTCTTAAATACCATCGCTCCAGGAAATGTTGTTCTTAAATACCATC
TACTGACACTGACATCCACTTTCTTCTCCACAGGTATCGATCCACCA
TGCAAATAGAGCTCTCACCTGCTTCTGTGCCTTGCATTGCTT
TAGTGCACCCAGAAGATACTACCTGGGTGCAGTGGAACTGTATGGACTAT
ATGCAAAGTGATCTGGTGAGCTGCCGTGGACGCAAGATTCCCTAGAG
TGCCAAAATCTTCCATTCAACACCTCAGTCGTACAAAAAGACTCTGTT
TGTAGAATTACGGATCACCTTCAACATCGCTAACGCCAGGCCACCCCTGG
ATGGGTCTGCTAGGTCCTACCATCCAGGCTGAGGTTATGATACTGGTCA
TTACACTTAAGAACATGGCTCCATCCTGTCAGTCAGTCTCATGCTGTTGGTGT
ATCCTACTGGAAAGCTCTGAGGGAGCTGAATATGATGATCAGACAGTC
AGGGAGAAAGAGATGATAAGTCTCCCTGGTGGAAAGCCATACATATGTCT
GGCAGGTCTGAAAGAGAATGGTCCAATGGCCTCTGACCCACTGTGCCTTAC
CTACTCATATCTTCTCATGTGGACCTGGTAAAAGACTTGAATTCAAGGCCTC
ATTGGAGCCCTACTAGTATGTAGAGAAGGGAGTCTGGCCAAGGAAAAGACAC
AGACCTTGCACAAATTATACTACTTTGCTGTATTGATGAAGGGAAAAG
TTGGCACTCAGAAACAAAGAAACTCCTGATGCAGGATAGGGATGCTGCATCT
GCTCGGGCCTGGCCTAAATGCACACAGTCATGGTATGAAACAGGTCTC
TGCCAGGTCTGATTGGATGCCACAGGAAATCAGTCATTGGCATGTGATTGG
AATGGGCACCACTCCTGAAGTGCACTCATATTCCCTGAAGGTACACACATT
CTTGTGAGGAACCATGCCAGGGCTCTGGAAATCTGCCAATAACAGGTCTC
TTACTGCTCAAACACTCTTGATGGACCTGGACAGTTCTACTGTTGTCA
TATCTCTCCCACCAACATGATGGCATGGAAGCTTATGTCAAAGTAGACAGC
TGTCCAGAGGAACCCCAACTACGAATGAAAAATAATGAAGAAGCGGAAGACT
ATGATGATGATCTTACTGATTCTGAAATGGATGTGGTCAGGTGATGATGA
CAACTCTCCTCCTTATCCAAATTGCTCAGTGCCAAGAAGCATCCTAAA

FIG. 6A

ACTTGGGTACATTACATTGCTGCTGAAGAGGGAGGACTGGGACTATGCTCCCT
TAGTCCTCGCCCCCGATGACAGAAGTTATAAAAGTCATATTGAACAATGG
CCCTCAGCGGATTGGTAGGAAGTACAAAAAAAGTCCGATTATGGCATAACACA
GATGAAACCTTAAGACTCGTGAAGCTATTCAAGCATGAATCAGGAATCTGG
GACCTTACTTATGGGAAGTTGGAGACACACTGTTGATTATTTAAGAA
TCAAGCAAGCAGACCATATAACATCTACCCCTCACGGAATCACTGATGTCCGT
CCTTGTATTCAAGGAGATTACCAAAAGGTGTAAAACATTGAAGGATTTTC
CAATTCTGCCAGGAGAAATATTCAAATATAATGGACAGTGACTGTAGAAGA
TGGGCCAACTAAATCAGATCCTCGGTGCCTGACCCGCTATTACTCTAGTTTC
GTTAATATGGAGAGAGATCTAGCTTCAGGACTCATTGGCCCTCCTCATCT
GCTACAAAGAACATCTGTAGATCAAAGAGGAAACCAAGATAATGTCAGACAAGAG
GAATGTCATCCTGTTCTGTATTGATGAGAACCGAAGCTGGTACCTCACA
GAGAATATAACACGCTTCTCCCAATCCAGCTGGAGTGCAGCTTGAGGATC
CAGAGTTCCAAGCCTCCAACATCATGCACAGCATCAATGGCTATGTTTGA
TAGTTGCAGTTGTCAGTTGTCATGAGGTGGCATACTGGTACATTCTA
AGCATTGGAGCACAGACTGACTTCCTTCTGTCTTCTGGATATACCT
TCAAACACAAAATGGTCTATGAAGACACACTCACCCATTCCATTCTCAGG
AGAAACTGTCTTCATGTCGATGGAAAACCCAGGTCTATGGATTCTGGGTGC
CACAACTCAGACTTCGGAACAGAGGCATGACCGCCTACTGAAGGTTCTA
GTTGTGACAAGAACACTGGTATTACGAGGACAGTTATGAAGATATTTC
AGCATACTGCTGAGTAAAAACAAATGCCATTGAACCAAGAACGCTTCTCCAG
AATCCACCAGTCTGAAACGCCATCAACCGAAATAACTCGTACTACTCTTC
AGTCAGATCAAGAGGAAATTGACTATGATGATACCATACAGTTGAAATGAA
GAAGGAAGATTGACATTATGATGAGGATGAAAATCAGAGCCCCCGCAGC
TTTCAAAAGAAAACACGACACTATTTATTGCTGCAGTGGAGAGGCTCTGGG
ATTATGGATGAGTAGCTCCCCACATGTTCTAAGAAACAGGGCTCAGAGTGG
CAGTGTCCCTCAGTTCAAGAAAGTTGTTCCAGGAATTACTGATGGCTCC
TTTACTCAGCCCTATACCGTGGAGAACTAAATGAACATTGGACTCCTGG
GCCATATATAAGAGCAGAAGTTGAAGATAATATCATGGTAACCTTCAGAAA
TCAGGCCTCTCGTCCCTATTCTTCTATTCTAGCCTTATTCTTATGAGGAA
GATCAGAGGCAAGGAGCAGAACCTAGAAAAAAACTTGTCAAGCCTAATGAAA
CCAAAACTTACTTTGGAAAGTGCAACATCATGGCACCCACTAAAGATGA
GTTGACTGCAAAGCCTGGCTTATTCTCTGATGTTGACCTGGAAAAAGAT
GTGCACTCAGGCCTGATTGGACCCCTCTGGTCTGCCACACTAACACACTGA
ACCCCTGCTCATGGGAGACAAGTGACAGTACAGGAATTGCTCTGTTTCAC
CATCTTGATGAGACCAAAAGCTGGTACTTCAGTGAACATGGAAAGATCCC
TGCAGGGCTCCCTGCAATATCCAGATGGAAGATCCCACCTTTAAAGAGAATT
ATCGCTTCCATGCAATCAATGGCTACATAATGGATAACTACCTGGCTTAGT
AATGGCTCAGGATCAAAGGATTGATGGTATCTGCTCAGCATGGCAGCAAT

FIG. 6B

GAAAACATCCATTCTATTCAATTCAAGTGGACATGTGTTCACTGTACGAAAAA
AAGAGGAGTATAAAATGGCACTGTACAATCTCTATCCAGGTGTTTGAGAC
AGTGGAAATGTTACCATCCAAAGCTGGAATTGGCGGGTGGAAATGCCTTATT
GGCGAGCATCTACATGCTGGATGAGCACACTTTCTGGTGTACAGCAATA
AGTGTCAAGACTCCCCTGGGAATGGCTTCTGGACACATTAGAGATTTCAGAT
TACAGCTTCAGGACAATATGGACAGTGGGCCAAAGCTGGCCAGACTTCAT
TATTCCGGATCAATCAATGCCTGGAGCACCAAGGAGCCCTTTCTGGATCA
AGGTGGATCTGTTGGCACCAATGATTATTACGGCATCAAGACCCAGGGTGC
CCGTCAGAAGTTCTCCAGCCTCTACATCTCAGTTATCATCATGTATAGT
CTTGATGGGAAGAAGTGGCAGACTTATCGAGGAAATTCCACTGGAACCTAA
TGGTCTTCTTGGCAATGTGGATTCATCTGGATAAAACACAATATTTTAA
CCCTCCAATTATTGCTCGATACATCCGTTGCACCCAACTCATTATAGCATT
CGCAGCACTTCGCATGGAGTTGATGGCTGTGATTTAAATAGTTGCAGCA
TGCCATTGGGAATGGAGAGTAAAGCAATATCAGATGCACAGATTACTGCTTC
ATCCTACTTACCAATATGTTGCCACCTGGTCTCCTTCAAAAGCTCGACTT
CACCTCCAAGGGAGGAGTAATGCCTGGAGACCTCAGGTGAATAATCCAAAAG
AGTGGCTGCAAGTGGACTTCCAGAAGACAATGAAAGTCACAGGAGTAACATAC
TCAGGGAGTAAATCTCTGCTTACCACTCAGCATGTATGTGAAGGAGTTCCCTCATC
TCCAGCAGTCAAGATGGCCATCAGTGGACTCTCTTTTCAAGATGGCAAAG
TAAAGGTTTCAGGGAAATCAAGACTCCTCACACCTGTGGTGAACCTCT
AGACCCACCGTTACTGACTCGCTACCTTCGAATTCAACCCCCAGAGTTGGGTG
CACCAAGATTGCCCTGAGGATGGAGGTTCTGGGCTGCGAGGCACAGGACCTCT
ACTGACTCGAGCCTAATAAAGGAAATTATTTCAATTGCAATAGTGTGTTGG
TTTTTGTGTGCGGCCGCAGGAACCCCTAGTGATGGAGTTGGCCACTCCCTC
TCTGCGCGCTCGCTCGCTCACTGAGGCCGGCGACCAAAGGTGCCCCGACGC
CCGGGCTTGGCCGGCGGCCTCAGTGAGCGAGCGAGCGCAGCTGCCTGC
AGGACAT

FIG. 6C